

CHAPTER III

METHODOLOGY

This chapter contains the methods used in this study. Methods used to facilitate the course of research. There is research design, population and sample, research variable, research instrument, validity and reliability, formality and homogeneity, data collecting method, and finally data analysis.

A. Research Design

The research applied quantitative research. Ary et al. (2010:303-305) explain that quantitative approaches using pre-experimental design have several ways of collecting data. In this study, researcher used pre-experiment research design to collect data.

In this study, researcher used one group pretest-posttest technique to collect data. This design involves only one group as a subject and it involves three steps; pretest, treatments, and posttest. Firstly, the group given a pretest before the experimental treatment. After the treatment is finished, the post-test is administered. The effectiveness of the instructional treatment is measured by comparing the average score of the pretest and posttest.

Table 3.1 The illustration of pre-experimental research design

Pre-test	Treatment	Post-test
Y1	X	Y2

Note:

Y1 : Student reading score before the treatment.

X : Applying treatment to student.

Y2 : Student reading score after the treatment

From the table above it can be concluded that the procedure for this research is:

1. Administering a pretest to measure student's reading comprehension ability in report text of the third-grade students at SMPN 1 Srengat before given treatment.
2. Applying the treatment of using visual imagery toward student's reading comprehension ability in report text of the third-grade students at SMPN 1 Srengat (see appendix 5).
3. Administering a posttest to measure student's reading comprehension ability in report text of the third-grade students at SMPN 1 Srengat after given treatment.

B. Population and Sample

1. Population

A population is a generalization area consisting of objects or subjects that share the same characteristics. In this study, the population was set to study, provide research action and draw conclusions. John W (2003:21) explains that a study requires a large population to be used as a data source. In this study, the population was all students of class VIII in SMPN 1 Srengat consisting of 10 classes.

2. Sample

The Sample is part of the total number and characteristics belong to the population. John, W. (2003:21) states, a sample is a small part of the population that researcher use.

The technique used by researcher in this study is a purposive technique to take samples. Teddle (2007:80) explains that purposive techniques include non-probability techniques that take samples based on purpose rather than randomly. In this study, researcher took one class from an existing class. The sample class is class IX H consisting of 35 students.

C. Research Variable

Variables are the focus of the study. According to Chojimah (2021:5), variables are characteristics of research subjects that tend to differ from one to the other. From this study, there are two variables:

1. Independent Variable

Independent variables are variables that can affect other variables. In other words, independent variables affect variable dependents. Lodico et al. (2006: 205) explained that the treatment given to participants is an independent variable in this study; the independent variable is “Visual Imagery Strategy”.

2. Dependent Variable

A dependent variable is a variable that also affects other variables. In other words, independent and dependent variables influence each other. This explanation was also conveyed by Creswell (1994: 129) that dependent variables occur due to the influence of independent variables. Variable dependent in this study is “Student's reading comprehension ability”.

D. Research Instrument

According to Arikunto (2006:126), an instrument is a device used to collect data. In this study, researcher collected data through tests that would be given to students. Arikunto (1998:130) also explained that the test is a matter of measuring skills and abilities. It is also conveyed by Brown (1994: 253) that a test has the purpose of knowing a person's abilities. According to the theory, it can be concluded that the test is an assessment to measure ability.

In this study, researcher provide multiple-choice pre-tests and post-tests to collect data (see appendix 6 and 8). The text used is limited using report text with an equivalent level of difficulty. The tests were developed based on English syllabus of report text for the third grade at junior high school (see appendix 4). The test developed as follows:

a. Clear instruction

In the test is given clear instructions to make it easier for students to carry out the test.

b. Appropriate and familiar topics

In this test, students given topics that correspond to the syllabus (material relating to other subjects in class IX). So that students be able to understand the text well.

c. Proper time allocation

In the test conducted, students given 2x30 minutes according to the English learning time set by the school.

E. Validity and Reliability Testing

To determine the quality of the tests to be used, researcher used tests of validity and reliability for the quality of reading comprehension of students that corresponded to the quality of quantitative measures.

1. Validity

Validity is an instrument of accuracy for measuring and developing instruments. Fraenkel and Wallen (2006:150) explain that validity is required to prepare and select instruments. Ary et al (2010:225) also explained that validity is significant for developing and facilitating instruments. In this study, researcher use the validity of the content, the validity of the construct, and the validity of the face to measure its validity.

a. Content Validity

Gay (1992:156) explains that content validity is a test to measure the area of the intended content. The validity of the content met if a test contains a sample of the skills and structure tested. It can be concluded that content validity is an agreement between the *Kompetensi Inti*, *Kompetensi Dasar*, and the result of the study. In this study, researcher combine the content and test material to formulate the validity of the content.

b. Construct Validity

According to Brown (2004: 45), content validity is a combination of theories from experts who can describe in detail the subject or object studied. Following this statement, researcher began the approach by asking students to answer questions related to report text to measure students' reading comprehension. The questions are given in the test take the form of multiple choices that correspond to create of the reading test and the validity of the construct to obtain validity. The test consists of one report text with 10 questions related to the appropriate report text to test reading comprehension.

To analyze the validity of the instruments used, researchers used SPSS 25 statistics for windows. Thus, the results can be seen in the table 3.3.

Table 3.3 The result of validity testing

Correlation of pre-test

		Correlation
Q1	Pearson Correlation	.526*
Q2	Pearson Correlation	.677**
Q3	Pearson Correlation	.925**
Q4	Pearson Correlation	.597*
Q5	Pearson Correlation	.666**
Q6	Pearson Correlation	.717**
Q7	Pearson Correlation	.564*
Q8	Pearson Correlation	-.231
Q9	Pearson Correlation	.925**
Q10	Pearson Correlation	.677**
Correlation	Pearson Correlation	1

** . Correlation is significant at the 0.01 level (2-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

Correlation of post-test

		Correlation
Q1	Pearson Correlation	.706**
Q2	Pearson Correlation	.630*
Q3	Pearson Correlation	.856**
Q4	Pearson Correlation	.689**
Q5	Pearson Correlation	.660**
Q6	Pearson Correlation	.559*
Q7	Pearson Correlation	.557*
Q8	Pearson Correlation	.557*
Q9	Pearson Correlation	.856**
Q10	Pearson Correlation	.242
Correlation	Pearson Correlation	1

** . Correlation is significant at the 0.01 level (2-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

From the results above showed that out of 10 questions tested there was 1 question that was not valid, so the researcher decided to use 9 valid instruments to be tested.

c. Face Validity

According to Indrawati (2014: 29), the test can be said to have face validity if the test looks as if it is measuring the measured thing. This statement is the same as Brown's opinion (2004: 26), the test has face validity if the test can be seen and measured by the senses. In other words, the tests performed have been by the level of the student. In this study, researcher made tests according to the grade IX students' material books to analyze the appropriate test levels. In this study several aspects are used to increase validity:

1. Clear instructions
2. Appropriate and familiar topics
3. Proper time allocation

2. Reliability

Harrison and Johnson (2001) explain that reliability is a test of consistency. In addition, Ary et al (206:236) also argue that reliability is the degree of consistency of an instrument. So, it can be concluded that reliability is a measure of accuracy and consistency of scores resulting from a particular test.

In this study, researcher conduct trials before carrying out research instruments. The results of the trial be analyzed using SPSS 25 statistics for windows. With criteria as follows:

Table 3.4 Criteria reliability testing

The Alpha Cronbach Score	Results
0.00-0.20	Less Reliable.
0.21-0.40	Rather Reliable.
0.41-0.60	Quite Reliable.
0.61-0.80	Reliable.
0.81-1.00	Very Reliable.

In the reliability test in this research obtained the following output:

Table 3.5 The result of reliability testing

Reliability Pre-Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.870	9

Reliability Post-Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.857	9

From the table above shows that the reliability test results from pre-test and post-test show reliable results. Reliability testing values showed results of 0.870, while reliability testing from post-tests showed results of 0.857. When viewed in the Alpha Cronbach score, the pre-test and post-test values show very reliable results, which means that research instruments are reliable to be tested.

F. Normality Testing

Normality testing is a test that is used to test data whether is distributed normally or not. In this study, researcher used SPSS to test the normality of the data. To find out if the data is normally distributed or not can use the following formulas:

- a. H_0 : Significance value > 0.05 : normal distributed data.
- b. H_a : Significance value < 0.05 : Data is not normally distributed.

G. Data Collecting Methods

The data collecting method is data used to collect research data. In line with the pre-experimental design, data collection use pre-test and post-test. In this research, the researcher uses the report text test to know the student's score of reading comprehension of report text. The test used is tested first before being given to students. The test is through trying out to pass the tests of validity, reliability, normality.

The score of the pre-test and post-test calculated by the formula:

$\text{Score} = \frac{\text{Correct answers} \times 100}{35}$

The purpose of this test is to measure the student's ability before and after treatment. The results reveal the effectiveness of visual imagery to improve the student's ability in reading comprehension of report text.

H. Data Analysis

Analysis data is an analysis of data that has been collected by researcher. The data value obtained from the tests that have been done and analyzed using SPSS 25 with a significant level of 5%. The tests determine the results of the study, whether there is a difference between students who use or do not use visual imagery strategy.

The results of data processing analyzed with the following formula:

If $p\text{-value} < \alpha$, H_0 is rejected
 If $p\text{-value} > \alpha$, H_0 is not rejected

P-value : Statistical calculation results
 α : Significance level
 H_0 : Hypothesis 0

From the formula above it can be concluded that if the p-value is lower than the significance level (0.05), hypothesis 0 can be rejected. This may indicate that visual imagery strategies are effective for improving reading comprehension skills for students. If the p-value is bigger than the significance level (0.05), this indicates that hypothesis 0 cannot be rejected. Thus, it can indicate that the visual imagery strategy is not effective to improve students' reading comprehension skills.